

# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:  
ITOH, Tadahiko

32nd Floor, Yebisu Garden Place  
Tower, 20-3, Ebisu  
4-chome, Shibuya-ku, Tokyo  
1506032 Japan



## NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing  
(day/month/year) 18.04.2006

Applicant's or agent's file reference  
R05244PCT

**FOR FURTHER ACTION** See paragraphs 1 and 4 below

International application No.  
PCT/JP2005/023699

International filing date  
(day/month/year) 19.12.2005

Applicant

RICOH COMPANY, LTD.

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

### Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

**When?** The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

**Where?** Directly to the International Bureau of WIPO, 34 chemin des Colombettes  
1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70

**For more detailed instructions,** see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

### 4. Reminders:

Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the ISA/JP

**Japan Patent Office**

3-4-3, Kasumigasaki, Chiyoda-ku, Tokyo 100-8915, Japan

Authorized officer

Commissioner of the Patent Office

Telephone No. +81-3-3581-1101 Ext. 3462

4M 9276

## ATTENTIONS

1. An applicant should pay attention that there is an amendment period for requesting to International Bureau computing from the dispatch date of the international search report under Article 19(1) and Rule 46.1.
2. An applicant should pay attention to the period prescribed by Article 22(2).
3. Request for copies of documents

Copies of the documents described in the international search report:

An applicant can request the copies of these cited documents to the Japanese Patent Office, however, National Center for Industrial Property Information and Training (Japan Patent Office building 2nd floor) handles inspection and copying of official gazettes and copying of other document etc.

### Contact and Reference

(Official gazettes) Industrial Property Information Reference Department

TEL: +81-3-3581-1101 Ext. 3811,3812

(Others) Industrial Property Reference Materials Department

TEL: +81-3-3581-1101 Ext. 3831,3832,3833

National Center for Industrial Property Information and Training

3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-0013, JAPAN

Japan Patent Information Organization also services sales of the copies of these cited documents. Those who request copying of the cited documents should pay attention to the following points.

### Application Method

- (1) As for Patent (Utility Model, Design) Gazette, the following points shall be defined clearly.

○Types of patent, utility model, and design

○Fiscal year and number of publication of application or publication of unexamined application (or patent number, registration number)

○Necessary number of paper sheets

- (2) As for documents except for the gazette, the following points are required attention.

○Be sure to attach the copy of the international search report (which shall be returned).

### Application and Reference

Copy Service Section, Information Processing Department

TEL: +81-3-3508-2313

Japan Patent Information Organization

Sato Daiya Building, 4-1-7, Toyo, Koto-ku, Tokyo 135-0016, JAPAN

Note: The period for requesting the copies of the documents to Japan Patent Office is set to 7 years from the international application date.

## NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under Article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the *PCT Applicant's Guide*, a publication of WIPO.

In these Notes, "Article," "Rule" and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions, respectively.

### INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report and the written opinion of the International Searching Authority, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only (see *PCT Applicant's Guide*, Annexes B1 and B2).

#### **What parts of the international application may be amended ?**

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Preliminary Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

**When ?** Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

#### **Where not to file the amendments ?**

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

**How ?** Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

**The amendments must be made in the language in which the international application is to be published.**

#### **What documents must/may accompany the amendments ?**

##### **Letter (Section 205(b)):**

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

**The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.**

## NOTES TO FORM PCT/ISA/220 (continued)

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

**The following examples illustrate the manner in which amendments must be explained in the accompanying letter:**

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:  
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:  
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:  
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or  
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:  
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

### **"Statement under Article 19(1)" (Rule 46.4)**

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

**It must be in the language in which the international application is to be published.**

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

### **Consequence if a demand for international preliminary examination has already been filed**

If, at the time of filing any amendments and any accompanying statement, under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the time of filing the amendments (and any statement) with the International Bureau, also file with the International Preliminary Examining Authority a copy of such amendments (and of any statement) and, where required, a translation of such amendments for the procedure before that Authority (see Rules 55.3(a) and 62.2, first sentence). For further information, see the Notes to the demand form (PCT/IPEA/401).

If a demand for international preliminary examination is made, the written opinion of the International Searching Authority will, except in certain cases where the Authority which established the written opinion does not also act as International Preliminary Examining Authority, be considered to be a written opinion of the International Preliminary Examining Authority. In this case, the applicant is invited to submit to the International Preliminary Examining Authority a written reply together, where appropriate, with amendments before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later (Rule 43bis.1(c)).

### **Consequence with regard to translation of the international application for entry into the national phase**

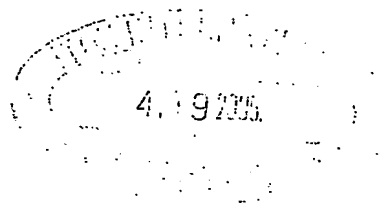
The applicant's attention is drawn to the fact that, upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see the *PCT Applicant's Guide*, Volume II.

# PATENT COOPERATION TREATY PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)



Applicant's or agent's file reference R05244PCT	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/JP2005/023699	International filing date(day/month/year) 19.12.2005	(Earliest) Priority Date (day/month/year) 24.12.2004
Applicant RICOH COMPANY, LTD.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

☒ the international application in the language in which it was filed

☐ a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II)

3. ☒ **Unity of invention is lacking** (see Box No. III)

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the **drawings**,

a. the figure of the drawings to be published with the abstract is Figure No. 4

☐ as suggested by the applicant

☒ as selected by this Authority, because the applicant failed to suggest a figure

☐ as selected by this Authority, because this figure better characterizes the invention

b. ☐ none of the figures is to be published with the abstract

# INTERNATIONALSEARCHREPORT

International application No.

PCT/JP2005/023699

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:  
See the extra sheet.

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☒ No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/JP2005/023699

## A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl. *H01L27/088 (2006.01), H01L27/115 (2006.01), H01L29/788 (2006.01)*

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl. *H01L21/8247 (2006.01), H01L21/8234 (2006.01),  
H01L27/088 (2006.01), H01L27/115 (2006.01), H01L29/788 (2006.01)*

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Published examined utility model applications of Japan 1922-1996  
Published unexamined utility model applications of Japan 1971-2006  
Registered utility model specifications of Japan 1996-2006  
Published registered utility model applications of Japan 1994-2006

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	US 2003/0203575 A1 (Hung et al.) 2003.10.30, column [ 0037 ], figs.3-9 & JP 2003-324164 A, column [ 0019 ], figs.3-9 & JP 2003-324165 A, column [ 0019 ], figs.3-9 & TW 535265 A & US 6653183 B2	1, 3, 4 2, 5-22
Y	US 2003/0235082 A1 (Hsu et al.) 2003.12.25, figs.3A, 3B, 4 & TW 536818 A & JP 2003-332475 A, figs.3A, 3B, 4	2, 19
Y	JP 2003-347435 A (RICOH KK) 2003.12.05, figs.5, 6 (family:none)	5-11, 20-22

☒ Further documents are listed in the continuation of Box C.
 ☐ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

28.03.2006

Date of mailing of the international search report

18.04.2006

Name and mailing address of the ISA/JP

**Japan Patent Office**

3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan

Authorized officer

**AKIRA SHOYAMA**

Telephone No. +81-3-3581-1101 Ext. 3462

4M 9276

## INTERNATIONALSEARCHREPORT

International application No.

PCT/JP2005/023699

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<u>US 5925907</u> A (Hazama) 1999.07.20, column 6, line 59- column 7, line 18, figs.1A-2B & JP 9-153601 A, columns [ 0038] -[ 0039] , figs.1-4	12-22
A	<u>US 2004/0113197</u> A1 (Yoshida et al.) 2004.06.17, whole document & JP 2004-165182 A, whole document	1-22
A	WO 2003/061011 A2 (INFINEON TECHNOLOGIES AG) 2003.07.24, whole document & DE 10201303 A1 & EP 1466367 A2 & US 2005/0116286 A1 & TW 200303087 A & CN 1615547 A & JP 2005-515638 A, whole document	1-22



D1: US 2003/0203575 A1 (Hung et al.), 2003.10.30

The separate inventions are not so linked as to form a single general inventive concept for the following reasons:

The same or corresponding matters (A) between the inventions of claims Nos. 1-22 are "a nonvolatile memory cell that includes a memory transistor and a selection transistor, the memory transistor being realized by a MOS transistor including a memory gate oxide film that is arranged on a semiconductor substrate and a floating gate made of polysilicon that is arranged on the memory gate oxide film which floating gate in an electrically floating state, and the selection transistor being realized by a MOS transistor serially connected to the memory transistor and including a selection gate oxide film that is arranged on the semiconductor substrate and a selection gate made of polysilicon that is arranged on the selection gate oxide film; and a peripheral circuit transistor realized by a MOS transistor including a peripheral circuit gate oxide film that is arranged on the semiconductor substrate, and a peripheral circuit gate made of polysilicon that is arranged on the peripheral circuit gate oxide film".

However, after taking the prior art into consideration, it became apparent that the matters (A) were mentioned in document D1, column [ 0037], figs.3-9. Therefore, the matters (A) makes no contribution over the prior art.

Thus there is no same or corresponding "special technical features" which is the expression in the PCT Rule 13.2. Therefore, there is no technical relationship between the inventions of claims Nos. [ 1-8], [ 9], [ 10], [ 11], [ 12-19], [ 20], [ 21] and [ 22].

Furthermore, the same or corresponding matters (B) between the inventions of claims Nos. [ 1-8] are the matters (A) and "the memory gate oxide film is arranged to be thinner than the peripheral circuit gate oxide film".

However, after taking the prior art into consideration, it became apparent that the matters (B) were mentioned in document D1, column [ 0037], figs.3-9. Therefore, the matters (B) makes no contribution over the prior art.

In claims Nos.[ 1-8], there is no same or corresponding "special technical features" which is the expression in the PCT Rule 13.2. Therefore, there is no technical relationship between the inventions of claims Nos. [ 1, 2], [ 3], [ 4] and [ 5-8].

Consequently, there are 11 inventions claimed in this application covered by claims Nos. 1-22.

From the INTERNATIONAL BUREAU

**PCT**NOTIFICATION CONCERNING  
SUBMISSION OR TRANSMITTAL  
OF PRIORITY DOCUMENT

(PCT Administrative Instructions, Section 411)

To:

ITOH, Tadahiko  
 32nd Floor, Yebisu Garden Place Tower  
 20-3, Ebisu 4-chome  
 Shibuya-ku, Tokyo 1506032  
 JAPON

3.31.2006

Date of mailing (day month year) 16 March 2006 (16.03.2006)	
Applicant's or agent's file reference R05244PCT	IMPORTANT NOTIFICATION
International application No. PCT/JP2005/023699	International filing date (day month year) 19 December 2005 (19.12.2005)
International publication date (day month year) Not yet published	Priority date (day month year) 24 December 2004 (24.12.2004)
Applicant RICOH COMPANY, LTD. et al	

- By means of this Form, which replaces any previously issued notification concerning submission or transmittal of priority documents, the applicant is hereby notified of the date of receipt by the International Bureau of the priority document(s) relating to all earlier application(s) whose priority is claimed. Unless otherwise indicated by the letters "NR", in the right-hand column or by an asterisk appearing next to a date of receipt, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
- (If applicable) The letters "NR" appearing in the right-hand column denote a priority document which, on the date of mailing of this Form, had not yet been received by the International Bureau under Rule 17.1(a) or (b). Where, under Rule 17.1(a), the priority document must be submitted by the applicant to the receiving Office or the International Bureau, but the applicant fails to submit the priority document within the applicable time limit under that Rule, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
- (If applicable) An asterisk (\*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b) (the priority document was received after the time limit prescribed in Rule 17.1(a) or the request to prepare and transmit the priority document was submitted to the receiving Office after the applicable time limit under Rule 17.1(b)). Even though the priority document was not furnished in compliance with Rule 17.1(a) or (b), the International Bureau will nevertheless transmit a copy of the document to the designated Offices, for their consideration. In case such a copy is not accepted by the designated Office as the priority document, Rule 17.1(c) provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

Priority date	Priority application No.	Country or regional Office or PCT receiving Office	Date of receipt of priority document
24 December 2004 (24.12.2004)	2004-372775	JP	30 January 2006 (30.01.2006)
30 March 2005 (30.03.2005)	2005-097472	JP	30 January 2006 (30.01.2006)

The International Bureau of WIPO  
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 1211 Geneva 20, Switzerland

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